SIEMENS

Data sheet

3RT2016-2AP02



Power contactor, AC-3 9 A, 4 kW / 400 V 1 NC, 230 V AC, 50 / 60 Hz 3-pole, Size S00 Spring-type terminal

product brand name SIRUS product brand technical data 3RT2 Ceneral technical data 3RT2 size of contactor \$000 product stression No • function module for communication No • auxiliary switch Yes opwer loss [W] for rated value of the current at AC in hot 2.1 W opwer loss [W] for rated value of the current without 4.2 W load current share typical 0.7 W surge voltage resistance 6 kV of main circuit rated value 6 kV of auxiliary dircuit rated value 10.5g / 5 ms, 4.2g / 10 ms shock resistance at rectangular impulse 6 / 7g / 5 ms, 6.6g / 10 ms of the contactor with added actirary switch block typical 10 000 000 of the contactor with added actitary switch block typical 10 000 000 <th></th> <th></th>		
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shock resistance with sine pulse 10,5g / 5 ms, 6,6g / 10 ms mechanical service life (switching cycles) 30 000 000 • of contactor typical 30 000 000 • of the contactor with added electronically optimized auxiliary switch block typical 5 000 000 • of the contactor with added auxiliary switch block typical 10 000 000 • of the contactor with added auxiliary switch block typical 10 000 000 • of the contactor with added auxiliary switch block typical 10 000 000 reference code acc. to IEC 81346-2 Q Substance Prohibitance (Date) 01.10.2009 00:00:00 Ambient conditions 2 000 m installation altitude at height above sea level maximum 2 000 m ambient temperature -25 +60 °C • during operation -25 +60 °C • during storage -55 +80 °C Main circuit 3 number of poles for main current circuit 3 number of NO contacts for main contacts 3	shock resistance at rectangular impulse	
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• during storage -55 +80 °C Main circuit number of poles for main current circuit 3 number of NO contacts for main contacts 3	ambient temperature	
Main circuit number of poles for main current circuit 3 number of NO contacts for main contacts 3	during operation	-25 +60 °C
number of poles for main current circuit 3 number of NO contacts for main contacts 3	during storage	-55 +80 °C
number of NO contacts for main contacts 3	Main circuit	
number of NO contacts for main contacts 3	number of poles for main current circuit	3
operating voltage at AC-3 rated value maximum 690 V		3
	operating voltage at AC-3 rated value maximum	690 V

operational current	
 at AC-1 at 400 V at ambient temperature 40 °C 	22 A
rated value ● at AC-1	
	22.4
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
• at AC-3	
• at AC-3 — at 400 V rated value	9 A
— at 500 V rated value	7.7 A
- at 690 V rated value	6.7 A
 at 850 V rated value at AC-4 at 400 V rated value 	8.5 A
 at AC-5a up to 690 V rated value 	19.4 A
• at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	130
up to 230 V for current peak value n=20 rated	5.3 A
value	
— up to 400 V for current peak value n=20 rated value	5.3 A
— up to 500 V for current peak value n=20 rated value	5.3 A
— up to 690 V for current peak value n=20 rated value a at AC 62	5 A
• at AC-6a	3.5 A
— up to 230 V for current peak value n=30 rated value	
— up to 400 V for current peak value n=30 rated value	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
 — up to 690 V for current peak value n=30 rated value 	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 mm ²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	4.1 A
 at 690 V rated value 	3.3 A
operational current	
 at 1 current path at DC-1 	
— at 24 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
 with 2 current paths in series at DC-1 	
— at 24 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
 with 3 current paths in series at DC-1 	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1 A
operational current	
 at 1 current path at DC-3 at DC-5 	
— at 24 V rated value	20 A

— at 110 V rated value	0.1 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 110 V rated value	0.35 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	1.5 A
— at 440 V rated value	0.2 A
— at 600 V rated value	0.2 A
operating power	
• at AC-3	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
operating power for approx. 200000 operating cycles at AC-4	
at 400 V rated value	2 kW
at 690 V rated value	2.5 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	2 kV·A
• up to 400 V for current peak value n=20 rated value	3.6 kV·A
 up to 500 V for current peak value n=20 rated value up to 500 V for current peak value n=20 rated value 	4.6 kV·A
• up to 690 V for current peak value n=20 rated value	5.9 kV·A
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	1.3 kV·A
• up to 400 V for current peak value n=30 rated value	2.4 kV·A
• up to 500 V for current peak value n=30 rated value	3.1 kV·A
 up to 690 V for current peak value n=30 rated value up to 690 V for current peak value n=30 rated value 	4 kV·A
short-time withstand current in cold operating state	
up to 40 °C	
 limited to 1 s switching at zero current maximum 	155 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	66 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	10 000 1/h
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	230 V
• at 60 Hz rated value	230 V
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 1.1
• at 60 Hz	0.85 1.1
apparent pick-up power of magnet coil at AC	
apparent plott ap perfer el magnet een at ite	
• at 50 Hz	27 V·A
	27 V·A 24.3 V·A
• at 50 Hz	
• at 50 Hz • at 60 Hz	
at 50 Hz at 60 Hz inductive power factor with closing power of the coil	24.3 V·A

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apparent holding power of magnet coil at AC	
• at 50 Hz	4.2 V·A
• at 60 Hz	3.3 V·A
inductive power factor with the holding power of the coil	
• at 50 Hz	0.25
• at 60 Hz	0.25
closing delay	
• at AC	9 35 ms
opening delay	
• at AC	7 13 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
• at 230 V rated value	10 A
• at 400 V rated value	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 A
operational current at DC-12	
 at 24 V rated value 	10 A
 at 48 V rated value 	6 A
 at 60 V rated value 	6 A
 at 110 V rated value 	3 A
 at 125 V rated value 	2 A
 at 220 V rated value 	1 A
• at 600 V rated value	0.15 A
operational current at DC-13	
 at 24 V rated value 	10 A
 at 48 V rated value 	2 A
 at 60 V rated value 	2 A
 at 110 V rated value 	1 A
 at 125 V rated value 	0.9 A
 at 220 V rated value 	0.3 A
at 600 V rated value	0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
 at 480 V rated value 	7.6 A
• at 600 V rated value	9 A
yielded mechanical performance [hp]	
 for single-phase AC motor 	
— at 110/120 V rated value	0.33 hp
— at 230 V rated value	1 hp
 for 3-phase AC motor 	
— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	
 for short-circuit protection of the main circuit 	
— with type of coordination 1 required— with type of assignment 2 required	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA) gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)

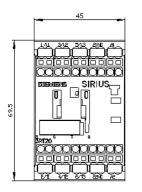
• for short-circuit protection of the auxiliary switch required

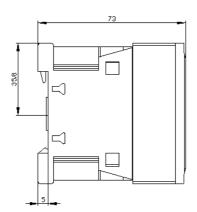
nstallation/ mounting/ dimensions			
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted		
fastening method	forward and backward by +/- 22.5° on vertical mounting surface screw and snap-on mounting onto 35 mm standard mounting rail		
3	according to DIN EN 60715		
side-by-side mounting	Yes		
height	70 mm		
width	45 mm		
depth	73 mm		
required spacing			
 with side-by-side mounting 			
— forwards	10 mm		
— upwards	10 mm		
— downwards	10 mm		
— at the side	0 mm		
 for grounded parts 			
— forwards	10 mm		
— upwards	10 mm		
— at the side	6 mm		
— downwards	10 mm		
for live parts			
— forwards	10 mm		
— upwards	10 mm		
— downwards	10 mm		
— at the side	6 mm		
Connections/ Terminals			
type of electrical connection			
 for main current circuit 	spring-loaded terminals		
 for auxiliary and control circuit 	spring-loaded terminals		
 at contactor for auxiliary contacts 	Spring-type terminals		
 of magnet coil 	Spring-type terminals		
type of connectable conductor cross-sections			
 for main contacts 			
— solid	2x (0.5 4 mm²)		
— solid or stranded	2x (0,5 4 mm²)		
 finely stranded with core end processing 	2x (0.5 2.5 mm²)		
 finely stranded without core end processing 	2x (0.5 2.5 mm²)		
 at AWG cables for main contacts 	2x (20 12)		
connectable conductor cross-section for main contacts			
• solid	0.5 4 mm²		
• stranded	0.5 4 mm²		
 finely stranded with core end processing 	0.5 2.5 mm²		
 finely stranded without core end processing 	0.5 2.5 mm²		
connectable conductor cross-section for auxiliary contacts			
 solid or stranded 	0.5 4 mm²		
 finely stranded with core end processing 	0.5 2.5 mm ²		
 finely stranded without core end processing 	0.5 2.5 mm²		
type of connectable conductor cross-sections			
for auxiliary contacts			
— solid or stranded	2x (0,5 4 mm²)		
 finely stranded with core end processing 	2x (0.5 2.5 mm ²)		
— finely stranded without core end processing	2x (0.5 2.5 mm ²)		
	2x (20 12)		
 at AWG cables for auxiliary contacts 	27 (20 12)		

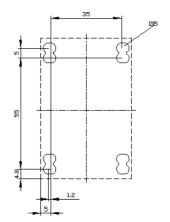
- f	40	00	10			
for main contact			12			
 for auxiliary cor 	itacts	20	12			
Safety related data						
_ ·	rror contact acc. to IEC		s 100 000			
B10 value with high d	B10 value with high demand rate acc. to SN 31920					
proportion of dange	rous failures					
 with low deman 	d rate acc. to SN 31920	40	%			
 with high dema 	nd rate acc. to SN 31920	73	%			
failure rate [FIT] with	low demand rate acc. to S	SN 31920 100	0 FIT			
	est interval or service lif	e acc. to 20	у			
IEC 61508						
	on the front acc. to IEC		IP20			
	the front acc. to IEC 60	529 fing	ger-safe, for vertical conta	act from the front		
suitability for use						
 safety-related s 	witching OFF	Ye	S			
Certificates/ approval	S					
General Product Ap	proval				EMC	
			<u>KC</u>	EHC	RCM	
Functional Safety/Safety of Machinery	Declaration of Confo	rmity	Test Certificates		Marine / Shipping	
<u>Type Examination</u> <u>Certificate</u>	<u>UK Declaration of</u> <u>Conformity</u>	CE EG-Konf.	<u>Type Test Certific-</u> ates/Test Report	Special Test Certific- ate	ABS	
Marine / Shipping						
B U REAU VERITAS	Lloyds Kegister us	PRS	RINA	RMRS RMRS	DIVIGL	
other						
<u>Confirmation</u>	DE	Confirmation				
Further information						
	wnloadcenter (Catalogs	s, Brochures,)				
https://www.siemens. Industry Mall (Online	com/ic10					
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	tion.siemens.com/WW/C			<u>16-2AP02</u>		
Service&Support (M	anuals, Certificates, Ch	aracteristics, FAQ	(S,) 12			
	Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,)					

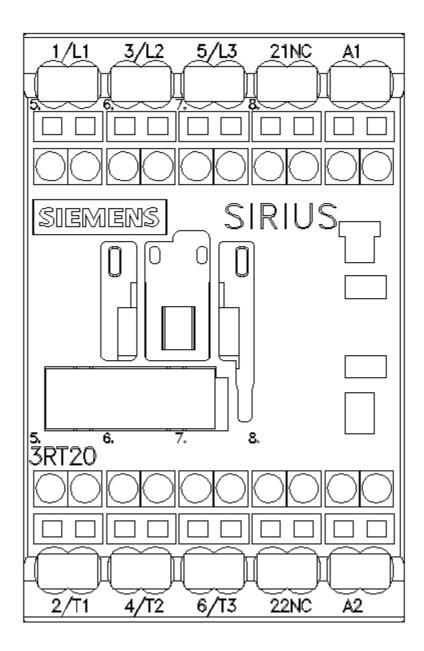
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-2AP02&lang=en

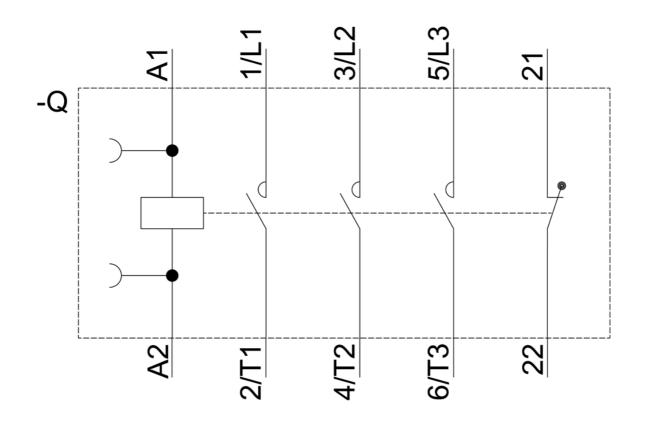
Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2AP02/char Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-2AP02&objecttype=14&gridview=view1











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